

## **PRESCHOOL EXIT ASSESSMENT PROJECT**

### **REPORT OF FINDINGS—2001-02**

The Missouri Preschool Assessment Project began during the 1998-99 school year as an effort to gather information about the school readiness of children as they exit public preschools—primarily those funded by Title I of ESEA and the Missouri Preschool Program (MPP). The study, coordinated by the Project Construct National Center, was conducted by Research & Training Associates, Inc. of Overland Park, Kansas.

Preschool teachers were provided professional development opportunities to observe and rate their students' preparation for kindergarten using a *School Entry Profile*. The instrument consists of 65 items that reflect important entry-level skills, knowledge, behaviors, and dispositions in seven areas of development. All public preschool teachers participated in the project during the first year and assessed 4,839 exiting preschoolers in approximately 220 schools statewide. During 1999-00, preschool teachers assessed 5,956 exiting preschoolers in approximately 300 schools statewide. During 2000-01, preschool teachers assessed 7,059 preschoolers in approximately 335 schools. During 2001-02, preschool teachers assessed 7,500 exiting preschoolers in approximately 360 schools. This report provides results of the fourth year evaluation.

### **INSTRUMENTATION**

The *School Entry Profile*<sup>1</sup> is built on prior instrumentation efforts and has been used to assess the skills of kindergartners entering Missouri public schools. Aided by an expert panel of early childhood specialists, early childhood educators, kindergarten teachers, and DESE directors of early childhood education and Title I, the instrument was designed to reflect areas of performance and assessment appropriate to kindergarten entry. The assessment was not designed and is not utilized to screen children for school entry or assign them to special programs.

The *School Entry Profile* is organized around seven conceptual areas that the expert panel agreed reflect important dimensions of school readiness and which build upon prior psychometric work in observational assessments in kindergarten. Conceptual areas and items measuring these areas were reviewed with the understanding that the skills and behaviors could be reliably observed within the beginning weeks of a school year. The areas identified include symbolic development, communication, mathematical/physical knowledge, working with others, learning to learn, physical development, and conventional knowledge.

Items for the symbolic development, communication, mathematical/physical knowledge, working with others, and learning to learn domains are assessed with a three-point scale: *almost always*, *occasionally/sometimes*, and *not yet/almost never*. Items comprising the physical development and conventional knowledge domains are scored *yes* and *no*.

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<sup>1</sup> See the *Student Observation Record* in Pfannenstiel, J.C. (1997). Kindergarten learning environments and student achievement: A study of constructivist and traditional teaching approaches. Overland Park, KS: Research & Training Associates, Inc.

Sixty-five items were either obtained from a previously developed instrument or were newly developed to reflect important kindergarten entry-level skills, knowledge, behaviors, or dispositions (see Appendix A for a copy of the instrument). It must be noted, however, that items do not measure the entirety of what should be taught or assessed in kindergarten.

Psychometric properties of the scales yielded alpha coefficient reliabilities for the symbolic development, communication, mathematical/physical knowledge, working with others, and learning to learn scales that exceed .84, greatly exceeding the .70 criterion generally accepted for reliability (see Tables 1-3 in Appendix B). The conventional knowledge scale consistently demonstrated a .63 reliability coefficient, somewhat lower than the minimum criterion. The conventional knowledge scale demonstrated greater reliability among the kindergarten population.<sup>2</sup> The physical development items did not form a scale; thus, the five items are reported as separate variables.

In addition, preschool teachers provided information on preschoolers' age (in months), racial/ethnic background, gender, eligibility for free or reduced price lunch, length of preschool attendance (less than one year, one year, or two years), and whether preschoolers received special education or Title I services.

## TRAINING FOR PRESCHOOL TEACHERS

All public preschool teachers were required to attend a one-day training session on observation-based techniques designed to assess children's skills, knowledge, and social development. The objectives of the training sessions include the following:

- " To gain awareness of the importance of the Preschool Assessment Project within the broader scope of the state action plan to achieve the goal of ensuring that all students enter kindergarten ready to be successful in school.
- " To understand that the purpose of the Preschool Assessment Project is to collect information to inform preschool practices and to respond to the accountability requirement for the evaluation of preschool programs funded under Title I.
- " To recognize that the *School Entry Profile* consists of observations of routine activities that occur in the preschool classroom.
- " To ensure that preschool teachers are valid and reliable administrators of the *School Entry Profile*.

To maintain consistency in rating times for all exiting preschoolers, teachers were asked to rate all children on one domain at a time. The recommended order of ratings asked teachers to begin with the physical development domain because it is easy to observe and can be observed almost immediately.

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<sup>2</sup> Pfannenstiel, J.C. (1999). School entry assessment project: Report of findings. Jefferson City, MO: Missouri Department of Elementary and Secondary Education.

## **PUBLIC PRESCHOOL POPULATION**

Statewide, public preschools represented in the study in the 2001-02 school year operated in approximately 360 schools, a slight increase over the prior year. Approximately 30% of the preschoolers attended MPP-funded preschools, and approximately 70% attended Title I-funded preschools (see Table 1).

A somewhat higher percentage of males (53%) than females (47%) is represented in the public preschool population (see Table 2). The racial/ethnic distribution of 19% minority students is somewhat higher than the 13% of minority students in the statewide school population. Fifteen percent of public preschoolers are African American. The average age of exiting preschoolers is 5.6 years and ranges from 4 to 7 years.

Preschool teachers indicate that 37% of the preschoolers are eligible for free or reduced price lunch (snacks) and 46% are ineligible; the teachers either did not know, or did not report, the eligibility of 17% of the preschoolers. Twelve percent of the preschoolers participated in special education.

Among the exiting preschoolers, 27% are known by teachers to also have participated in preschool as a 3-year-old. Approximately 8% of the exiting preschoolers participated for less than one year.

## **TEACHER ASSESSMENTS OF PRESCHOOLERS**

Preschool teachers assessed children on 65 items in domains of physical development, symbolic development, communication, mathematical/physical knowledge, working with others, learning to learn, and conventional knowledge. Percentage distributions for each item by domain are contained in Table 4 in Appendix B. Complete scale scores for each of the six scales were obtained for 95-99% of the exiting preschoolers.

Teachers assessed each child's physical development on five indicators with a simple *yes/no* response format. Almost all of the children (99%) were described as physically active and appeared to be healthy. Ninety-nine percent of the children demonstrated gross motor skills (e.g., running, jumping, climbing stairs, or skipping) and fine motor skills (e.g., control of scissors or pencil) at preschool exit. This compares favorably to 82% of the children statewide who demonstrated fine motor skills at kindergarten entry.<sup>3</sup> Preschool teachers indicated that almost all of the children (99%) appeared to be healthy and practice personal hygiene (98%).

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<sup>3</sup> See Pfannenstiel, J. (2001). School entry assessment project: Report of findings. Jefferson City, MO: Department of Elementary and Secondary Education.

**Table 1. Percentage Distribution of Sources of Funding for Public Preschools \***

Title I	58
Title I & Other Sources **	8
MPP	27
MPP & Other Sources	3
Title I & MPP	3
Title I, MPP, & Other Sources	<1
Other Sources Only	1
	(7258)

**Table 2. Percentages of Public Preschoolers with Selected Socio-Demographic Characteristics**

<b>Racial/Ethnic Characteristics</b>	<b>1998-99 (N=4839)</b>	<b>1999-00 (N=5956)</b>	<b>2000-01 (N=7059)</b>	<b>2001-02 (N=7500)</b>
American Indian or Alaska Native	.4	.4	.4	.4
Black or African American	16.7	17.1	14.7	14.6
Native Hawaiian or other Pacific Islander	.3	.3	.3	.3
Asian	.6	.9	1.0	1.2
Hispanic or Latino	2.5	2.7	2.5	2.7
White	81.0	80.5	82.7	82.5
Percentage indicating any minority ***	20.6	22.2	18.8	19.0
<b>Gender</b>				
Male	53.0	53.8	53.6	53.3
Female	46.7	46.2	46.4	46.7
<b>Poverty</b>				
Qualifying for free/reduced lunch	36.2	40.4	41.3	37.3
Not qualifying for free/reduced lunch	33.3	42.0	36.2	45.8
Missing data	30.5	17.6	22.6	16.9
<b>Preschool Participation</b>				
Participated as 3-year-old	19.5	20.7	27.3	26.9
4-year-olds participating <1 yr.	6.0	10.4	4.1	8.4
<b>Special Education</b>				
Percentage in Special Education	9.0	11.2	12.1	12.3

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\* Sources of funding not reported for 2% of preschoolers.

\*\* Other sources include Early Childhood funds, 21<sup>st</sup> Century, local funds, or other funds.

\*\*\* Percentages total to more than 100 due to multiple racial/ethnic identities.

Teacher assessments of children's performance on the six scale domains are presented in Table 3. Approximately 54% of exiting preschoolers score at the ceiling in symbolic development, 39% score at the ceiling in mathematical/physical knowledge, 45% score at the ceiling on working with others, and 44% score at the ceiling in learning to learn; this compares favorably to 33% of the entering kindergartners in 2000 who score at the ceiling on these scales (see Table 4).<sup>4</sup> Almost 40% of exiting preschoolers and approximately one-third of entering kindergartners score at the ceiling on conventional knowledge. Seventeen percent of exiting preschoolers, compared to 11% of entering kindergartners, score at the ceiling on the lengthy 19-item communication scale.

On average, exiting public preschoolers score significantly and meaningfully higher than the average entering kindergartner on each scale (see Tables 3 and 4.) In the first two years of the study, exiting preschoolers scored similarly to entering kindergartners who had attended preschool, whether public or private, on all scales. In 2000-01 and 2001-02, exiting preschoolers score higher on all scales ( $p < .0001$ ) than kindergartners who had attended preschool prior to school entry in 2000 (see Tables 3 and 5). Moreover, both high poverty preschoolers and low poverty preschoolers score significantly higher than entering kindergartners with preschool experience.

To investigate whether kindergarten teachers would consider exiting preschoolers *prepared for kindergarten*, mean scores for each rating for preschoolers were compared to the ranges of scores that kindergarten teachers used to delineate *above average*, *average*, or *below average preparation* for entering kindergartners.<sup>5</sup> On each scale, preschool teachers rate only 4-12% of the children as being within the score ranges of *below average preparation*; this compares to 22% of entering public school kindergartners who are rated as having *below average* preparation by their teachers (see Table 6). Conversely, approximately 60-75% of exiting preschoolers are rated within the score ranges of *above average* preparation on the various scale scores. Only 30% of entering kindergartners meet that criterion.

***Approximately two-thirds of exiting preschoolers are within the ranges of "above average" preparation for kindergarten.***

<sup>4</sup> Since the School Entry Assessment was not conducted in 2001, the 2000 sample provides the most recent point of comparison.

<sup>5</sup> Entering kindergartners who were rated *above average* in their preparation for kindergarten score three-quarters of a standard deviation above the average score of 100. They score almost a full standard deviation higher in their communication skills. Children rated of *average preparation* score almost exactly at the mean of 100. The 25% of children who were rated *below average* in their preparation for kindergarten were well below average—in almost all areas a full standard deviation below average. By any standard of comparison, kindergarten teachers use very stringent criteria for designating children "below average" in their preparation for kindergarten.

**Table 3. Descriptive Statistics for Scale Scores for Exiting Public Preschoolers**

	<b>Mean 1998-99</b>	<b>Mean 1999-00</b>	<b>Mean 2000-01</b>	<b>Mean 2001-02</b>	<b>s.d.</b>	<b>Range</b>	<b>% at Ceiling</b>	<b>N</b>
Symbolic Development	18.7	19.2	19.4	19.5	2.4	7-21	54	7437
Communication	44.3	45.7	46.4	46.7	7.2	18-54	17	7148
Mathematical/Physical Knowledge	25.8	26.5	26.9	27.0	4.1	10-30	39	7385
Working with Others	18.3	18.8	19.0	18.9	2.7	7-21	45	7396
Learning to Learn	24.4	24.9	25.1	25.0	2.8	9-27	44	7428
Conventional Knowledge	9.6	9.7	9.7	9.8	1.4	1-11	38	7285

**Table 4. Descriptive Statistics for Scale Scores for Fall 2000 Entering Kindergartners**

	<b>Mean</b>	<b>s.d.</b>	<b>Range</b>	<b>% at Ceiling</b>	<b>N</b>
Symbolic Development	17.5	3.7	7-21	32	3048
Communication	40.6	10.1	18-54	11	2941
Mathematical/Physical Knowledge	23.1	6.0	10-30	22	3045
Working with Others	17.0	3.8	7-21	27	3043
Learning to Learn	22.3	4.7	9-27	25	3053
Conventional Knowledge	9.1	2.1	1-11	32	2958

**Table 5. Descriptive Statistics for Scale Scores for Fall 2000 Entering Kindergartners Who Attended Preschool\***

	<b>Mean</b>	<b>s.d.</b>	<b>Range</b>	<b>% at Ceiling</b>	<b>N</b>
Symbolic Development	18.0	3.4	7-21	36	1989
Communication	42.3	9.6	18-54	13	1923
Mathematical/Physical Knowledge	24.2	5.6	10-30	26	1988
Working with Others	17.5	3.6	7-21	31	1976
Learning to Learn	22.9	4.4	9-27	30	1985
Conventional Knowledge	9.5	1.8	1-11	39	1944

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\* Excluding special needs children.

**Table 6. Percentage of Exiting 2001-02 Preschoolers Scoring within Entering 2000 Kindergarten Ranges in Preparation for Kindergarten\***

	Average Summed Scores For Kindergartners in Fall 2000			% of 2001 Preschoolers in K Score Range		
	Above Average Preparation (30%)	Average Preparation (48%)	Below Average Preparation (22%)	Above Average Preparation	Average Preparation	Below Average Preparation
Symbolic Development	19.6	17.7	14.4	77	12	12
Communication	49.2	40.7	28.3	61	32	7
Mathematical/ Physical Knowledge	27.8	23.4	16.1	70	23	7
Working with Others	19.5	17.1	13.5	66	22	12
Learning to Learn	25.6	22.6	17.4	71	23	6
Conventional Knowledge	10.5	9.5	6.4	65	31	4

Demographic and background characteristics of preschoolers were investigated for their relationship to preschool exit performance. Male preschoolers are rated significantly lower than females on all scales ( $p < .0001$ ); overall, males are rated slightly below average and females are rated slightly above average on all domains (see Table 7). The largest difference in mean performance between males and females is on the communication scale; the lowest difference in mean performance is on the mathematical/physical knowledge scale.

On five of the six scales, preschoolers of racial/ethnic minority background score significantly lower than non-minority preschoolers (see Table 8). The largest differences between minority and non-minority preschoolers are on the communication and mathematical/physical knowledge scales.

Preschoolers who are eligible for free or reduced price lunch score significantly lower than those who are ineligible on all scales ( $p < .0001$ ); however, they score only slightly below average on all scales (see Table 9). The 23% of preschoolers with missing data on eligibility for free or reduced price lunch score at the average on all scales and do not differ significantly from preschoolers who are eligible or preschoolers who are not eligible.

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\* Includes special education preschoolers.

**Table 7. Means of Raw and Standardized Scale Scores of Exiting Preschoolers by Gender\***

	<b>Males</b>			<b>Females</b>		
	<b>Raw</b>	<b>Standardized</b>	<b>(N)</b>	<b>Raw</b>	<b>Standardized</b>	<b>(N)</b>
Symbolic Development	19.3	98.1	(3349)	19.9	102.0	(3204)
Communication	46.0	97.4	(3206)	48.4	102.7	(3089)
Mathematical/Physical Knowledge	26.9	98.6	(3325)	27.6	101.4	(3186)
Working with Others	18.7	98.1	(3328)	19.4	102.0	(3187)
Learning to Learn	24.8	97.8	(3352)	25.6	102.3	(3201)
Conventional Knowledge	9.7	98.4	(3291)	10.0	101.7	(3131)

**Table 8. Means of Raw and Standardized Scale Scores of Exiting Preschoolers by Minority Status\***

	<b>Minority</b>			<b>Non-Minority</b>		
	<b>Raw</b>	<b>Standardized</b>	<b>(N)</b>	<b>Raw</b>	<b>Standardized</b>	<b>(N)</b>
Symbolic Development	19.4	98.5	(1281)	19.7	100.4	(5248)
Communication	45.8	96.9	(1218)	47.5	100.8	(5052)
Mathematical/Physical Knowledge	26.5	96.8	(1270)	27.5	100.8	(5218)
Working with Others	18.6	97.4	(1267)	19.1	100.6	(5224)
Learning to Learn	24.8	97.9	(1276)	25.3	100.5	(5254)
Conventional Knowledge	9.7	98.6	(1250)	9.9	100.3	(5151)

**Table 9. Means of Raw and Standardized Scale Scores of Exiting Preschoolers by Eligibility for Free/Reduced Price Lunch\***

	<b>Eligible for Free/ Reduced Price Lunch</b>			<b>Ineligible for Free/ Reduced Price Lunch</b>		
	<b>Raw</b>	<b>Standardized</b>	<b>(N)</b>	<b>Raw</b>	<b>Standardized</b>	<b>(N)</b>
Symbolic Development	19.4	98.9	(2416)	19.7	100.9	(3064)
Communication	46.3	98.0	(2315)	48.1	102.1	(2973)
Mathematical/Physical Knowledge	26.7	97.9	(2398)	27.7	101.8	(3047)
Working with Others	18.8	98.4	(2395)	19.3	101.4	(3053)
Learning to Learn	24.9	98.6	(2404)	25.4	101.4	(3071)
Conventional Knowledge	9.7	98.1	(2375)	10.0	101.8	(3009)

\* Excluding special education preschoolers

Breakdowns of standardized scale means by background characteristics—eligibility for free or reduced price lunch (poverty), minority status, and gender—are provided in Table 10. Results of t-tests of scale means for all possible comparisons among background characteristics are provided in Table 5 of Appendix B. The t-test results indicate the following:

- Female preschoolers score significantly higher on all scales for categories of children that include poor minority, poor non-minority, and non-poverty minority. For non-poverty, non-minority preschoolers, females score significantly higher than males on symbolic development ( $p < .0001$ ), communication ( $p < .01$ ), and learning to learn ( $p < .001$ ).
- Non-poverty preschoolers score significantly higher than poverty preschoolers on all scales ( $p < .0001$ ) for non-minority males and females. Only on the learning to learn scale do non-poverty minority females score significantly higher than poor minority females ( $p < .05$ ). Non-poverty male minorities score significantly higher than poor minority males in the communication ( $p < .05$ ) and mathematical/physical scale ( $p < .01$ ). Poor minority males score significantly higher than non-poverty minority males on symbolic development ( $p < .01$ ).

Preschoolers who attend preschool for longer periods of time score significantly higher on all scales ( $p < .0001$ ). Preschoolers who spend less than five months in preschool score three scale scores lower on every scale than preschoolers who spend more than five months in preschool.

A multiple regression analysis was employed to investigate the predictive power of background characteristics (gender, age, poverty, racial/ethnic minority status) and length of preschool attendance on preschool exit performance. These analyses indicate that controlling for all other predictors, the age of the child, gender, and length of preschool participation are significant predictors of achievement on all scales ( $p < .0001$ ). Similarly, poverty status of the child is a significant negative predictor on all scales ( $p < .0001$ ). Racial/ethnic minority status is a negative predictor on all scales except the conventional knowledge scale.

Despite these significant findings, the amount of variation on each scale accounted for by the combination of background characteristics is small, ranging from 3% for symbolic development to 9% for communication. This indicates that factors other than background characteristics, which are unmeasured by this study, account for the vast majority of variation in performance of exiting preschoolers.

**Table 10. Means of Standardized Scale Scores by Eligibility for Free or Reduced Price Lunch, Minority Status, and Gender\***

	Eligible for Free/Reduced Price Lunch				Ineligible for Free/Reduced Price Lunch			
	Minority Male (N=332)**	Female (N=397)	Non-Minority Male (N=833)	Female (N=842)	Minority Male (N=165)	Female (N=114)	Non-Minority Male (N=1450)	Female (N=1289)
Symbolic Development	96.5	99.9	97.2	101.0	93.3	101.5	99.8	103.2
Communication	93.2	99.4	95.7	101.3	96.3	100.7	99.9	105.4
Mathematical/Physical Knowledge	93.0	98.0	97.4	100.3	97.1	99.5	100.8	103.8
Working with Others	94.0	98.9	96.8	101.4	96.8	100.1	100.1	103.6
Learning to Learn	94.3	98.9	96.4	101.8	96.2	102.1	99.9	103.7
Conventional Knowledge	95.8	101.5	96.3	99.3	98.1	101.2	100.3	104.0

\* Excluding special needs preschoolers.

\*\* Because of the comparatively small number of minority students who are ineligible for free or reduced price lunch, the achievement of this group demonstrates more variability from year to year.

## **SPECIAL NEEDS PRESCHOOLERS**

Approximately 12% of public preschoolers are provided special education services. More than two-thirds of the public preschoolers identified for special education services are male and 86% are non-minority (see Table 11). Approximately 41% qualify for free or reduced price lunch, but 19% have missing data on eligibility.

Public preschoolers identified for special education services score, on average, at a standardized score of 93, approximately one-half of a standard deviation below average on all scales. Male special needs children score slightly below female special needs children on communication ( $p < .05$ ), working with others ( $p < .01$ ), and learning to learn ( $p < .05$ ). Non-minority and minority special needs children score similarly on all scales except the working with others scale, on which minority special needs students score slightly lower ( $p < .01$ ). High poverty special needs children score significantly lower than non-poverty special needs students on all scales except symbolic development. They score significantly lower on communication ( $p < .001$ ), mathematical/physical knowledge ( $p < .001$ ), working with others ( $p < .01$ ), learning to learn ( $p < .01$ ), and conventional knowledge ( $p < .001$ ). High poverty special needs children score approximately one-third of a standard deviation below non-poverty special needs children on all scales.

**Table 11. Means of Standardized Scale Scores for Exiting Special Needs Preschoolers  
by Gender, Eligibility for Free/Reduced Price Lunch\* and Minority Status**

	<b>All Special Education Preschoolers (N=871)</b>	<b>Male (N=603)</b>	<b>Female (N=268)</b>	<b>Eligible for Free/Reduced Price Lunch (N=354)</b>	<b>Ineligible for Free/Reduced Price Lunch (N=349)</b>	<b>Minority (N=121)</b>	<b>Non- Minority (N=750)</b>
Symbolic Development	93.1	92.3	94.9	91.1	93.9	92.5	93.2
Communication	91.9	91.0	93.9	88.9	93.9	89.9	92.2
Mathematical/ Physical Knowledge	92.2	92.2	92.2	89.2	93.6	89.3	92.7
Working with Others	93.8	92.7	96.2	91.4	95.5	89.8	94.5
Learning to Learn	93.2	92.3	95.3	90.4	95.2	90.7	93.6
Conventional Knowledge	91.6	90.8	93.5	88.2	94.0	91.0	91.7

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\* Eligibility for free/reduce price lunch data is missing for 19% of special education preschoolers.

## **APPENDIX A**

### **Study Instrument**

## **APPENDIX B**

### **Tables**

Table 1. Means, Standard Deviations, Reliability Estimate (in parentheses) and Intercorrelations of Scales, 1999-00

	<u>Mean</u>	<u>sd</u>	1	2	3	4	5	6
1. Symbolic Development	19.2	2.5	(85)					
2. Communication	45.7	7.2	66	(91)				
3. Mathematical/Physical Knowledge	26.5	4.1	59	79	(89)			
4. Working with Others	18.8	2.8	64	64	59	(86)		
5. Learning to Learn	24.9	2.8	65	69	65	77	(85)	
6. Conventional Knowledge	9.7	1.5	40	60	60	42	45	(63)

Note. N=5880.

Coefficient alpha raw reliability estimate for scales are reported in parentheses.

Decimals are omitted from correlations and reliability estimates.

Table 2. Means, Standard Deviations, Reliability Estimate (in parentheses) and Intercorrelations of Scales, 2000-01

	<u>Mean</u>	<u>sd</u>	1	2	3	4	5	6
1. Symbolic Development	19.4	2.4	(84)					
2. Communication	46.4	7.1	64	(91)				
3. Mathematical/Physical Knowledge	26.9	4.0	59	81	(89)			
4. Working with Others	19.0	2.7	63	62	59	(86)		
5. Learning to Learn	25.1	2.8	65	70	68	78	(84)	
6. Conventional Knowledge	9.7	1.5	40	61	63	42	49	(64)

Note. N=7009.

Coefficient alpha raw reliability estimate for scales are reported in parentheses.

Decimals are omitted from correlations and reliability estimates.

Table 3. Means, Standard Deviations, Reliability Estimate (in parentheses) and Intercorrelations of Scales, 2001-02

	<u>Mean</u>	<u>sd</u>	1	2	3	4	5	6
1. Symbolic Development	19.5	2.4	(85)					
2. Communication	46.7	7.2	65	(92)				
3. Mathematical/Physical Knowledge	27.0	4.1	62	81	(90)			
4. Working with Others	18.9	2.7	64	65	60	(86)		
5. Learning to Learn	25.0	2.8	65	70	68	77	(84)	
6. Conventional Knowledge	9.8	1.4	41	63	62	42	48	(63)

Note. N=7437.

Coefficient alpha raw reliability estimate for scales are reported in parentheses.

Decimals are omitted from correlations and reliability estimates.

**Table 4. Percentage Distribution of Items on the Preschool Assessment for Four Years**

	1998-99					1999-00					2000-01					2001-02				
	Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)	
— Symbolic Development																				
1. Takes part in interactive play with others.	81	18	2	(4839)		85	14	1	(5913)		87	12	1	(7049)		86	13	1	(7483)	
2. Uses play themes.	75	22	3	(4839)		81	17	2	(5908)		84	15	1	(7049)		84	15	1	(7483)	
3. Represents ideas and feelings through movement.	64	30	6	(4839)		72	24	4	(5908)		74	23	3	(7046)		76	21	3	(7473)	
4. Creates or responds to music.	70	26	4	(4839)		77	20	3	(5905)		77	20	3	(7043)		79	19	2	(7473)	
5. Represents ideas through.	74	24	2	(4839)		80	18	2	(5902)		82	16	1	(7033)		83	16	1	(7475)	
6. Uses art to convey feelings and ideas.	65	31	4	(4839)		70	26	4	(5903)		74	23	3	(7038)		74	22	3	(7471)	
7. Talks about his or her creations.	69	26	5	(4839)		74	22	4	(5910)		79	18	3	(7036)		78	19	3	(7470)	
— Communication																				
1. Uses language to communicate ideas, feelings, questions, or to solve problems.	76	21	3	(4839)		80	18	2	(5909)		82	16	2	(7043)		82	17	2	(7471)	
2. Uses language to pretend or create.	75	21	4	(4839)		80	17	3	(5908)		83	15	2	(7042)		83	15	2	(7464)	
3. Responds to questions.	82	17	1	(4839)		85	14	2	(5909)		87	12	1	(7046)		85	14	1	(7470)	
4. Follows directions.	76	22	2	(4839)		79	20	1	(5893)		79	20	1	(7041)		79	20	1	(7465)	
5. Shows interest in books.	81	17	2	(4839)		86	13	1	(5899)		87	12	1	(7041)		87	12	1	(7466)	
6. Uses picture cues and/or context cues to construct meaning from text.	72	25	4	(4839)		77	20	3	(5883)		81	17	2	(7030)		81	16	3	(7466)	

	1998-99					1999-00					2000-01					2001-02				
	Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)	
7. Exhibits book-handling skills.	81	17	3	(4839)		87	11	1	(5906)		90	9	1	(7039)		89	10	2	(7462)	
8. Reads environmental print.	58	35	7	(4839)		64	29	7	(5881)		67	26	6	(7026)		71	24	5	(7440)	
9. Responds to texts.	71	25	4	(4839)		77	20	4	(5895)		80	17	3	(7029)		80	17	3	(7457)	
10. Identifies letters in the alphabet	58	29	13	(4839)		63	27	10	(5877)		66	26	9	(7004)		67	25	9	(7439)	
11. Recognizes that there is a relationship between letters and sounds.	35	36	29	(4839)		41	34	25	(5897)		48	32	20	(7027)		52	31	18	(7448)	
12. Recognizes that written spellings represent spoken words.	55	30	15	(4839)		62	26	12	(5898)		67	22	11	(7026)		69	22	9	(7462)	
13. "Reads" simple books.	52	29	20	(4839)		55	29	16	(5892)		57	27	15	(7019)		59	26	15	(7453)	
14. Scribbles with intended meaning.	54	32	14	(4839)		61	28	11	(5888)		62	26	12	(7020)		64	26	10	(7434)	
15. Uses some letters in writing.	51	30	19	(4839)		58	26	16	(5890)		61	24	16	(7031)		61	24	15	(7471)	
16. Uses letter-sound correspondence to write.	17	25	58	(4839)		20	27	54	(5893)		23	27	50	(7011)		25	27	48	(7446)	
17. Uses a variety of resources to facilitate writing.	29	39	32	(4839)		36	34	29	(5890)		40	34	26	(7022)		43	34	23	(7450)	
18. Shares writing with others.	50	34	16	(4839)		57	31	12	(5894)		61	27	11	(7020)		62	28	10	(7466)	
19. Recognizes first name in print.	91	7	1	(4839)		93	5	1	(5903)		95	4	1	(7027)		94	5	1	(7467)	
<b>—Mathematical/Physical Knowledge</b>																				
1. Classifies objects used in daily experiences or identifies similarities and differences.	74	23	3	(4839)		81	17	2	(5899)		84	15	1	(7035)		84	14	2	(7473)	

	1998-99					1999-00					2000-01					2001-02				
	Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)	
2. Writes some numbers.	49	30	21	(4839)		54	28	18	(5910)		57	26	17	(7032)		57	26	17	(7470)	
3. Uses numerical relationships to solve problems in daily life.	59	30	10	(4839)		67	26	8	(5903)		68	24	8	(7031)		70	23	7	(7476)	
4. Orders things according to relative differences.	60	33	8	(4839)		69	26	5	(5907)		73	23	4	(7040)		73	23	4	(7471)	
5. Makes one-to-one correspondence.	72	23	5	(4839)		76	19	4	(5912)		80	16	3	(7044)		79	17	4	(7478)	
6. Determines “same,” “more than,” and “less than” by comparing.	66	28	6	(4839)		71	24	5	(5907)		75	21	4	(7043)		76	20	4	(7474)	
7. Uses spatial relationships in solving mathematical problems.	72	25	3	(4839)		78	19	2	(5906)		82	16	2	(7039)		82	15	3	(7470)	
8. Shows understanding of sequence of daily events.	81	17	3	(4839)		85	13	2	(5908)		87	11	2	(7036)		86	12	2	(7468)	
9. Experiments with objects to produce effects.	57	35	8	(4839)		61	32	6	(5898)		66	28	5	(7034)		70	25	5	(7463)	
10. Explains own actions in manipulating objects.	61	31	8	(4839)		64	29	7	(5902)		70	24	6	(7030)		71	23	6	(7473)	
<b>— Working with Others</b>																				
1. Uses adults as resources.	79	19	2	(4839)		84	15	2	(5912)		85	14	1	(7050)		84	15	1	(7476)	
2. Initiates conversation with familiar adults.	76	21	4	(4839)		82	16	3	(5902)		83	15	2	(7046)		83	15	2	(7475)	
3. Works cooperatively with others in a give-and-take manner.	66	30	4	(4839)		70	28	2	(5897)		72	26	2	(7047)		70	27	2	(7473)	
4. Uses peers as resources.	64	31	5	(4839)		70	26	4	(5891)		72	24	4	(7044)		72	25	3	(7468)	
5. Shares resources with others.	68	29	3	(4839)		73	25	2	(5886)		76	22	2	(7029)		74	24	2	(7458)	

	1998-99					1999-00					2000-01					2001-02				
	Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)		Almost Always	Occasionally/ Sometimes	Not Yet/ Almost Never	(N)	
6. Shows sensitivity and respect for others.	66	29	5	(4839)		70	26	4	(5901)		73	24	4	(7042)		72	24	4	(7474)	
7. Suggests appropriate solutions to conflicts.	49	38	13	(4839)		54	36	9	(5896)		58	33	9	(7036)		56	35	9	(7452)	

**— Learning to Learn**

1. Shows curiosity and interest.	83	16	1	(4839)		88	11	1	(5903)		89	11	1	(7050)		89	10	<1	(7476)	
2. Explores and tries new things.	76	22	2	(4839)		82	16	1	(5904)		83	16	1	(7051)		84	15	1	(7476)	
3. Takes responsibility for belongings.	77	21	2	(4839)		80	18	2	(5904)		83	15	1	(7048)		82	17	2	(7476)	
4. Makes choices.	85	14	2	(4839)		88	11	1	(5899)		90	10	1	(7040)		89	11	1	(7476)	
5. Stays focused and productive while playing/working independently.	71	27	3	(4839)		76	21	3	(5908)		78	20	2	(7050)		76	21	2	(7475)	
6. Stays focused and productive while playing/working in a group.	62	34	4	(4839)		70	27	3	(5908)		71	26	3	(7049)		70	27	3	(7475)	
7. Shows pride in accomplishments.	85	14	1	(4839)		90	9	1	(5899)		91	8	1	(7049)		91	9	1	(7473)	
8. Copes with frustrations and failure.	60	33	7	(4839)		63	32	6	(5906)		65	30	6	(7044)		64	30	5	(7470)	
9. Talks about what he or she is learning.	67	28	6	(4839)		72	24	4	(5907)		75	21	4	(7045)		75	21	4	(7470)	

**1998-99**

**1999-00**

**2000-01**

**2001-02**

	% Yes	(N)	% Yes	(N)	% Yes	(N)	% Yes	(N)
<b>— Physical Development</b>								
1. Is physically active.	99	(4839)	99	(5914)	99	(7034)	99	(7460)
2. Demonstrates gross motor skills.	98	(4839)	99	(5913)	99	(7033)	99	(7459)
3. Demonstrates fine motor skills.	95	(4839)	96	(5904)	95	(7031)	95	(7457)
4. Appears to be healthy.	98	(4839)	99	(5909)	99	(7034)	99	(7450)
5. Practices personal hygiene.	98	(4839)	98	(5906)	97	(7030)	98	(7457)
<b>— Conventional Knowledge</b>								
1. Tells first and last name.	97	(4839)	97	(5903)	97	(7043)	98	(7456)
2. Knows how to contact an adult family member.	47	(4839)	49	(5823)	48	(6971)	47	(7413)
3. Knows age.	98	(4839)	98	(5908)	98	(7034)	98	(7460)
4. Knows birthdate.	51	(4839)	57	(5847)	59	(6992)	62	(7428)
5. Recognizes some basic shapes.	95	(4839)	95	(5910)	96	(7022)	97	(7466)
6. Identifies basic colors.	97	(4839)	97	(5914)	97	(7044)	98	(7472)
7. Counts by rote to 10.	95	(4839)	95	(5904)	95	(7035)	95	(7468)
8. Recognizes and names some numbers to 10.	89	(4839)	89	(5898)	89	(7029)	88	(7455)

**Table 5. T-Test of Scales by Gender, Eligibility for Free/Reduced Price Lunch and Minority Status**

	<b>Symbolic Development</b>	<b>Communication</b>	<b>Mathematical/ Physical Knowledge</b>	<b>Working with Others</b>	<b>Learning to Learn</b>	<b>Conventional Knowledge</b>
<b>Gender: *</b>						
Poverty minority	F <sup>3</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>2</sup>	F <sup>1</sup>
Non-poverty minority	F <sup>1</sup>	F <sup>3</sup>		F <sup>4</sup>	F <sup>2</sup>	
Poverty non-minority	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>
Non-poverty non-minority	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>	F <sup>1</sup>
<b>Eligibility for Free/Reduced Price Lunch: **</b>						
Male minority	E <sup>4</sup>	I <sup>4</sup>	I <sup>3</sup>			
Female minority					I <sup>4</sup>	
Male non-minority	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>
Female non-minority	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>	I <sup>1</sup>
<b>Minority: ***</b>						
Male poverty			N <sup>4</sup>	N <sup>3</sup>	N <sup>4</sup>	M <sup>3</sup>
Female poverty			N <sup>3</sup>			
Male non-poverty		N <sup>2</sup>	N <sup>3</sup>	N <sup>3</sup>		
Female non-poverty	N <sup>1</sup>	N <sup>4</sup>	N <sup>3</sup>	N <sup>3</sup>	N <sup>3</sup>	

\* F indicates females score higher than males.

\*\* E indicates eligible students score higher than ineligible students; I indicates ineligible students score higher than eligible students.

\*\*\* N indicates non-minority students score higher than minority students; M indicates minority students score higher than non-minority.

1 =  $p < .0001$

2 =  $p < .001$

3 =  $p < .01$

4 =  $p < .05$